

Claims

- [c1] 1. An apparatus for bonding a transmission line to the inside diameter of a downhole tool, the apparatus comprising:
a pre-formed interface for bonding a transmission line to the inside diameter of a downhole tool, wherein the pre-formed interface comprises:
a first surface substantially conforming to the outside contour of a transmission line; and
a second surface substantially conforming to the inside diameter of a downhole tool.
- [c2] 2. The apparatus of claim 1, wherein the first surface mechanically grips the transmission line.
- [c3] 3. The apparatus of claim 1, wherein the first surface is bonded to the transmission line.
- [c4] 4. The apparatus of claim 3, wherein the first surface is bonded to the transmission line using at least one of adhesives and welding.
- [c5] 5. The apparatus of claim 1, wherein the first surface completely encircles the transmission line.

- [c6] 6. The apparatus of claim 1, wherein the first surface partially encircles the transmission line.
- [c7] 7. The apparatus of claim 1, wherein the second surface is bonded to the inside diameter of the downhole tool using at least one of adhesives and welding.
- [c8] 8. The apparatus of claim 1, wherein the pre-formed interface is pre-formed using at least one method selected from the group consisting of extrusion, stamping, and casting.
- [c9] 9. The apparatus of claim 1, wherein the pre-formed interface is configured to engage at least one recess milled in the surface of the inside diameter.
- [c10] 10. A method for bonding a transmission line to the inside diameter of a downhole tool, the method comprising:
pre-forming an interface for bonding a transmission line to the inside diameter of a downhole tool, wherein pre-forming comprises:
forming a first surface substantially conforming to the outside contour of a transmission line; and
forming a second surface substantially conforming to the inside diameter of a downhole tool; and
bonding the second surface to the inside diameter of the

downhole tool.

- [c11] 11. The method of claim 10, further comprising mechanically gripping, by the first surface, the transmission line.
- [c12] 12. The method of claim 10, further comprising bonding the first surface to the transmission line.
- [c13] 13. The method of claim 12, wherein bonding further comprises bonding using at least one of adhesives and welding.
- [c14] 14. The method of claim 10, further comprising completely encircling, by the first surface, the transmission line.
- [c15] 15. The method of claim 10, further comprising partially encircling, by the first surface, the transmission line.
- [c16] 16. The method of claim 10, wherein bonding the second surface to the inside diameter of the downhole tool comprises bonding using at least one of adhesives and welding.
- [c17] 17. The method of claim 10, wherein pre-forming the interface further comprises pre-forming using at least one method selected from the group consisting of extruding, stamping, and casting.

- [c18] 18. The method of claim 10, further comprising engaging, by the pre-formed interface, at least one recess milled in the surface of the inside diameter.
- [c19] 19. A method for bonding a transmission line to the inside diameter of a downhole tool, the apparatus comprising:
positioning a transmission line near the inside wall of a downhole tool;
positioning a mold near the transmission line and the inside wall;
injecting a bonding material into the mold such that the bonding material bonds the transmission line to the inside wall; and
curing the bonding material.
- [c20] 20. The method of claim 19, further comprising removing the mold from the bonding material.
- [c21] 21. The method of claim 19, further comprising preparing the surface of at least one of the inside wall, and the transmission line, before injecting the bonding material.
- [c22] 22. The method of claim 19, further comprising forming gaps in the bonding material at desired intervals along the bonding material.

